II. SPECIFICATION AMENDMENTS

Please replace the paragraph beginning on page 4, lines 2-4 as rewritten below:

FIGS. 16a through 16f are illustrations of an embodiment of link optimization using loop ~~end~~ and cross-link optimization simultaneously.

Please replace the paragraph beginning on page 4, lines 12-14 as rewritten below:

FIG. 20 is a flow chart of one embodiment of a method of cost function optimization incorporating features of the present invention.

Please replace the paragraph beginning on page 6, lines 3-26 as rewritten below:

Referring to FIG. 1, a flowchart illustrating one embodiment of a method incorporating features of the preset invention is shown. Generally, the method of the present invention involves forming a valid test topology, and then in a systematic manner, exchanging branches of the test topology until most or all such choices have been exhausted and a final desired topology is attained. The first step generally comprises determining 308 a candidate configuration for the network of nodes 20. The candidate configuration can be determined by implementing the desired valid test topology rules. In the general branch exchange process, it is possible to form topology configurations that are not valid.

For example, double loops are an example of a topology configuration that is not valid. The process of the present invention aims to avoid invalid configurations and reduce the number of steps. For example, referring to FIG. 2, a valid ring structure ~~8~~ 80 is formed with those nodes 20 that have at least two links 22. This basic bi-connected ring structure ~~8~~ 80 is maintained throughout the optimization process, although the actual radio links (or branches) 22 can be changed. Next, those nodes that have available at least three links (or exactly one link) are further integrated or incorporated into the ring structure 80 ~~8~~.

Please replace the paragraph beginning on page 10, line 15 through page 11, line 2 as rewritten below:

In one embodiment the present invention can be performed in a matrix manipulation. For example consider the connections as shown in Figure 2. In matrix form this network can be described as seen in Figure 12 ~~1~~. The process of switching two links as shown in Figure 3 can be done in matrix form by switching rows and columns for the two links. The result is shown in Figure 13 ~~14~~. The matrix of Figure ~~14~~ 15 was formed from the matrix of Figure ~~13~~ 14 by switching column 1 with column 4 and switching row 1 with row 4. The second stage of the branch exchange process can be performed in a like manner considering only the crosslink. For example consider the crosslinks shown in Figure 8. These links can be portrayed in matrix form as shown in Figure 14 ~~15~~. The process of exchanging two of the crosslinks as shown in Figure 9 can be shown in matrix form by exchanging columns 1 and 4 and rows 1 and 4 in Figure 15. The exchange is shown in Figure 16. A second example of using branch exchange

techniques to locate a local minimum in a network optimization scheme can be seen in Figures 16a-16f.

Please replace the paragraph beginning on page 18, line 23 through page 19, line 8 as rewritten below:

The present invention uses a new means for ordering and reordering link connections in a hierarchal structure that greatly reduces the number of candidate network mesh constructs. Each candidate construct is guaranteed to maintain a desired bi-connectivity with a specified form factor. While the overall optimization procedure is sub-optimal, the procedure is guaranteed to approach a local minimization with an ever descending slope. As the number of nodes in a network increases, the complexity of operations needed to optimize the network topology by standard techniques becomes untenable. The present invention reduces the viable candidate structures to be examined by orders of magnitude. Those structures that do not have a desirable pre-designated form factor are automatically not considered in the process. It therefore becomes possible to optimize network topology structures of significant size in very reasonable computation times.